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THE CACHEMIRE GOAT.

[Cachemire Goats.]

THE above representation of the Cachemire Goat is taken from the fine work of F. Cuvier and G. St. Hilaire, on Mammiferous Animals. The specimen, in the Jardin des Plantes at Paris, of which that work contains a portrait, was sent from Calcutta, having been obtained from the menagerie of the Governor-General of India, where it was born of a couple that came direct from Cachemire to Bengal. The wool of this goat appears, by a scrupulous comparison, to be quite as delicate as the finest brought from Thibet. Cachemire, however, contains several breeds of goats with fine wool; a specimen was recently sent to England, which differed from that in France by having longer ears. But they all yield, apparently, the same produce; for the fineness of the wool is occasioned by the influence of the climate.

There are two sorts of hair which nature seems to have furnished, more or less, to every quadruped: the one, fine, curly, generally grey, and imparting to the skin a down more or less thick, as if to guard it against cold and damp; the other, coarse, flat, giving a general colour to the animal, and appearing in numerous instances to be an organ of sensation.

These two sorts of hair generally become thicker, according to the degree of cold to which they are exposed; and the frizzled hair becomes gradually finer as the cold increases in dryness. It is this frizzled hair of the Cachemire goat which renders these animals so valuable; for to this we owe those delicate shawls which are so deservedly esteemed for a variety of qualities found in no other article of clothing.

The French have attempted to introduce this breed of goats into their own country; but the success of the experiment seems somewhat doubtful. It is, however, singular, as observed by Messrs. Cuvier and Hilaire, that no European has yet availed himself of the wool produced by most of our domestic goats, which, though less delicate than the Thibet, would undoubtedly have yielded a web far more fine and even than the most admired merino sheep.

The male goat, in the Menagerie of the Jardin des Plantes, is admired for his symmetry, his graceful motion, and his quiet temper. But he has a much greater distinction—he is free from smell; whereas nearly all European goats are known to emit a strong, unpleasant odour. The Cachemire goat is of middling size; two feet high at the neck joint, and two feet ten inches from the snout to the root of the tail; his head from the snout between the horns is nine inches, and his tail five. His horns are erect and spiral, diverging off towards the points. His silky hair is long, flat, and fine, instead of gathering

up in bunches like that of the Angora goats. It is black about the head and neck, and white about the other parts of the body. The woolly hair is always of a greyish white, whatever be the colour of the rest.

MINERAL KINGDOM.—SECTION 12.

ORGANIC REMAINS.—(*Continued.*)

ALTHOUGH the forms of leaves and other parts of plants impressed upon stones, and petrified wood and vegetable substances found in a fossil state, had long ago attracted the attention of naturalists, it is only very lately that the subject of "Fossil Botany," as it has been termed, has been investigated by men of science competent to throw light upon it. M. Adolphe Brongniart in France, and, more recently, Professor Lindley in this country, have directed their special attention to this curious and difficult branch of geological inquiry. By the former of these eminent botanists, the materials which had been collected by earlier observers have been examined anew, and have been classed in accordance with the principles of botanical arrangement in the present more advanced state of that science. M. Brongniart, by those researches into earlier writers, by a personal inspection of specimens in the museums of most countries in Europe, and by extensive communications with distinguished botanists and geologists, has arrived at some very important general results, which he has developed in a special work entitled "Histoire des Végétaux Fossiles;" and in that and in his "Prodrome d'une Histoire des Végétaux Fossiles," has sketched such a system of classification as will greatly facilitate the future prosecution of fossil botany. In our language, a work entitled "The Fossil Flora of Great Britain" has been begun by Professor Lindley and Mr. William Hutton of Newcastle-on-Tyne, which bids fair to be of great use in extending our knowledge in this field. The subject is yet in its infancy; but when it has been further investigated by botanists who possess accurate and extensive knowledge to surmount the great difficulties with which it is attended, it cannot fail to throw much light upon the geological history of our planet.

The plants, of which fossil remains have been met with, belong to every one of the six great classes into which the vegetable kingdom is divided; there is no great *class* of vegetable structure which did not exist prior to the deposition of the tertiary strata. For the sake of our general readers, we will shortly state which these classes are, and give an example of a plant belonging to each. The classes are founded mainly upon the particular provision which nature has made for the reproduction of the plant:—1. *Agamæ* are those plants which have no special organs of fructification, the term being taken from the Greek words *a*, without; and *gamos*, marriage;—all the sea-weed tribe belong to this class. 2. *Cellular cryptogamæ*, or those with a concealed seed apparatus (*cryptos* being Greek for concealed), and composed of cellular tissue without vessels, such as the moss tribe. 3. *Vascular cryptogamæ*, those having a concealed seed apparatus like the former, but with vessels or a vascular structure: the very numerous tribe of ferns belong to this class. All the plants of these three first classes are flowerless. 4. *Gymnospermous phanerogamæ*, those with exposed organs of reproduction or flowers, (*phaneros* being Greek for apparent or evident,) but with naked seeds, (*gymnos*, naked; *sperma*, seed,) such as the fir-tree tribe. 5. *Monocotyledonous phanerogamæ*, those with flowers, but having a seed composed of one lobe (*monos*, single; *cotyledon*, lobe). Wheat, and all grasses, and the palm-tree, belong to this class. 6. *Dicotyledonous phanerogamæ*, those with flowers and two cotyledons, or seed lobes (*dis*, double, and cotyledon,) which is by far the most numerous class, the greater number of trees and plants we see around us in this country belonging to it: the common bean is a good example of the double cotyledon. Some of the *families* or *orders* of each class are met with in the fossil state: there are different genera of each order, some corresponding to living genera, others that are now extinct; and in most of the genera several species have been discovered, but almost all of these are now extinct. It is a remarkable circumstance that no trace of grasses of any sort has yet been found in the fossil state, but when one considers the vast number of extinct land animals, belonging to the graminivorous tribes, of which the bones are scattered over so many countries, it is hardly possible to conceive that grasses did not exist in former states of our globe. Vegetable remains are generally most abundant in the older strata, and it would almost seem as if there had formerly existed some condition of the atmosphere under which the putrefactive process went on more slowly than in the later ages, while the tertiary strata were forming: a greater proportion of carbonic acid gas than is now contained in the atmosphere would have that effect. In speaking of animal remains, (No. 76—8th June, 1833,) we have alluded to a notion prevalent among some geologists, that there has been in creation a gradual passage from the simple to the most complicated structures,—what is termed a *progressive development*; and we stated our reasons for believing that such a notion has proceeded more from our ignorance of the structure of those animals which we call simple, than from any want of a refined and beautiful mechanism in their frames. The same idea exists on the subject of plants, but it has been very satisfactorily disproved by Professor Lindley. The plants of most simple structure are met with only in the superior strata, while in the older strata, such as the coal measures, and where vegetable remains are most in abundance, we have not only palms, and other plants of the same tribe, the most highly developed that we know in the monocotyledonous class of the existing æra, but other plants that are met with in great numbers in the same strata, called sigillariæ and stigmariæ, belong in all probability to the dicotyledonous or most highly organized class of plants.

The time which elapsed from the commencement of the deposition of the older secondary strata, to that of the most recent of the tertiary beds, appears to be divisible into four great botanico-geological periods, of unequal duration, during each of which vegetation exhibited a common character. Each of these periods, therefore, is characterized by peculiar classes of plants, or, in the language of botanists, may be said to have a FLORA of its own; and each period embraces a certain number of the series of stratified rocks which compose the crust of the globe. During the continuance of each of those periods, vegetation seems to have undergone only gradual and limited changes—to have been subject to no changes which had an influence upon the essential character of the vegetation, taken as a whole; but, on the contrary, there is between one period and another a marked division, a sudden change in the most important characters of the vegetation. There exists no species common to two successive periods; all is different; and a new *ensemble* of plants, which must have been produced under circumstances different from those which preexisted, replaces the old vegetation. The four great periods are as follows:—

A.—*The First Period* includes the coal measures and all the strata containing organic remains which lie below them. (M. to Q. Diagram in No. 51, 19th of January.)

B.—*The Second Period* comprehends the vast deposits of red sandstone, magnesian limestone, and a sandstone lying above that limestone

called the new red sandstone. (L. and part of K.)

C.—*The Third Period* commences with a kind of shelly limestone, that forms a member of the upper part of the group of red marly sandstone (K.), and includes all the superior secondary strata up to the chalk. (G. to I.)

D.—*The Fourth Period* includes all the strata more recent than the chalk. (C. to F.)

It is a remarkable circumstance that the periods are separated by strata, which, if not entirely destitute of *land* plants, contain them in very small quantity. Thus A. is separated from B. by a formation of coarse sandstone, (called by geologists the red conglomerate,) in which plants are of rare occurrence, and by the magnesian limestone in which marine plants are almost exclusively found: again, B. and C. are separated by the shelly limestone (muschelkalk of geologists), which is almost destitute of vegetable remains: and, lastly, C. is separated from D. by the chalk, in which, with rare exceptions, only marine plants have yet been found.

First Period.—The lowest strata in which animal remains are found contain also those of plants, so that it would appear that animal and vegetable life were from the first co-existent. The plants in the older sandstones are for the most part marine, but the impressions are usually indistinct. Black carbonaceous matter, without any organic form, is by no means unfrequent, and sometimes in considerable quantity, and it is not improbable that it is of vegetable origin, for fossil plants are very commonly found in the state of charcoal. It is in the beds of coal, and in the sandstones, clays, and limestones which accompany them, that vegetable remains first occur in profusion, and there are few phenomena in geology more remarkable than those enormous accumulations of vegetable matter from which the coal-beds have been derived. We shall advert more fully to this subject when we come to treat specially of coal, and shall only at present touch generally upon the character of the vegetation of the period. The most distinguishing feature of it is the great numerical preponderance of the third class; viz., the vascular cryptogamæ, and the prodigious size which the plants attain. They constitute five-sixths of the whole flora of the period, while they do not form the proportion of one-thirtieth in the vegetation of the present time. The ferns of temperate regions are low plants with stems rising scarcely a few inches above the ground, but in the equatorial regions there are what are called tree-ferns, which have a stem from twenty to thirty feet high. Now the different kinds of fossil ferns of this period often correspond with the tree-ferns of the tropics, as is attested by the remains of their stems which are occasionally met with. The plants called lycopodiums by botanists constitute another order of this class, and are of a kind intermediate between tree-ferns and the fir-tree tribe. Those now existing never exceed the height of three feet, and are usually weak prostrate plants having the habits of mosses; but the fossil lycopodiums attain gigantic sizes, stems having been found above three feet in diameter, and seventy feet long. There is in this period a much smaller proportion of the fourth and fifth classes, in comparison with what occurs in existing vegetation, and, with the exception of the fir-tribe which was very common, the existence of the dicotyledonous class is little more than conjectured. The plants which constitute by far the larger proportion of the flora of the first period belong to genera which exist, of such dimensions, only in the warmest countries of the globe; and it is evident, therefore, that the climate of the north of Europe and America must have been at least as hot as that of the equatorial regions, at the time the plants grew which are now buried many fathoms under ground in the coal-mines of those countries, for all the circumstances attending them exclude the idea of the plants having been drifted from southern latitudes into those situations.

Second Period.—The red sandstones which were deposited so extensively at this period are even more destitute of vegetable than they are of animal remains. This absence of organic remains is a very remarkable and inexplicable circumstance, considering the great extent occupied by these deposits in all countries, and their vast thickness. The plants hitherto found in the lowest strata of the period have been almost exclusively marine, the few exceptions being vascular cryptogamæ resembling those of the first period. In the superior beds a few of the coniferæ or fir-tree tribe have been found, and some that are supposed to belong to the monocotyledonous class.

Third Period.—The lowest stratum of this period contains very few plants, and these chiefly marine; but they become more abundant in the sands, sandstones, clays, and limestones that succeed each other in numerous alternations up to the chalk. Many belong, however, to an entirely new race of plants from any which had previously existed. There are no longer the gigantic ferns and lycopodiums of the first period,—the same families exist, but the character of excessive luxuriance disappears, and species analogous to plants—now natives of the Cape of Good Hope and New Holland—become common. The whole of the flora of the period consists almost exclusively of the third and fourth classes, and nearly in equal proportions: the rarity of the fifth and sixth classes, that is, of monocotyledonous and dicotyledonous plants, is very remarkable. Among those belonging to the fourth class, viz. the gymnospermous phanerogamæ, there is an extraordinary preponderance of the family called *cycadeæ*, a family scarcely so numerous now over the whole globe as it was then in the small part of Europe where its fossil remains have been found: it constitutes now not above a thousandth part of existing vegetation, whereas it forms one-half of what remains of the flora of this period. The chalk, which constitutes the upper strata of the period, has not afforded as yet more than a few marine plants, and scarcely a trace of land plants, so that a complete change had taken place in the nature of the country surrounding those parts where the chalk was deposited, from what had existed immediately before.

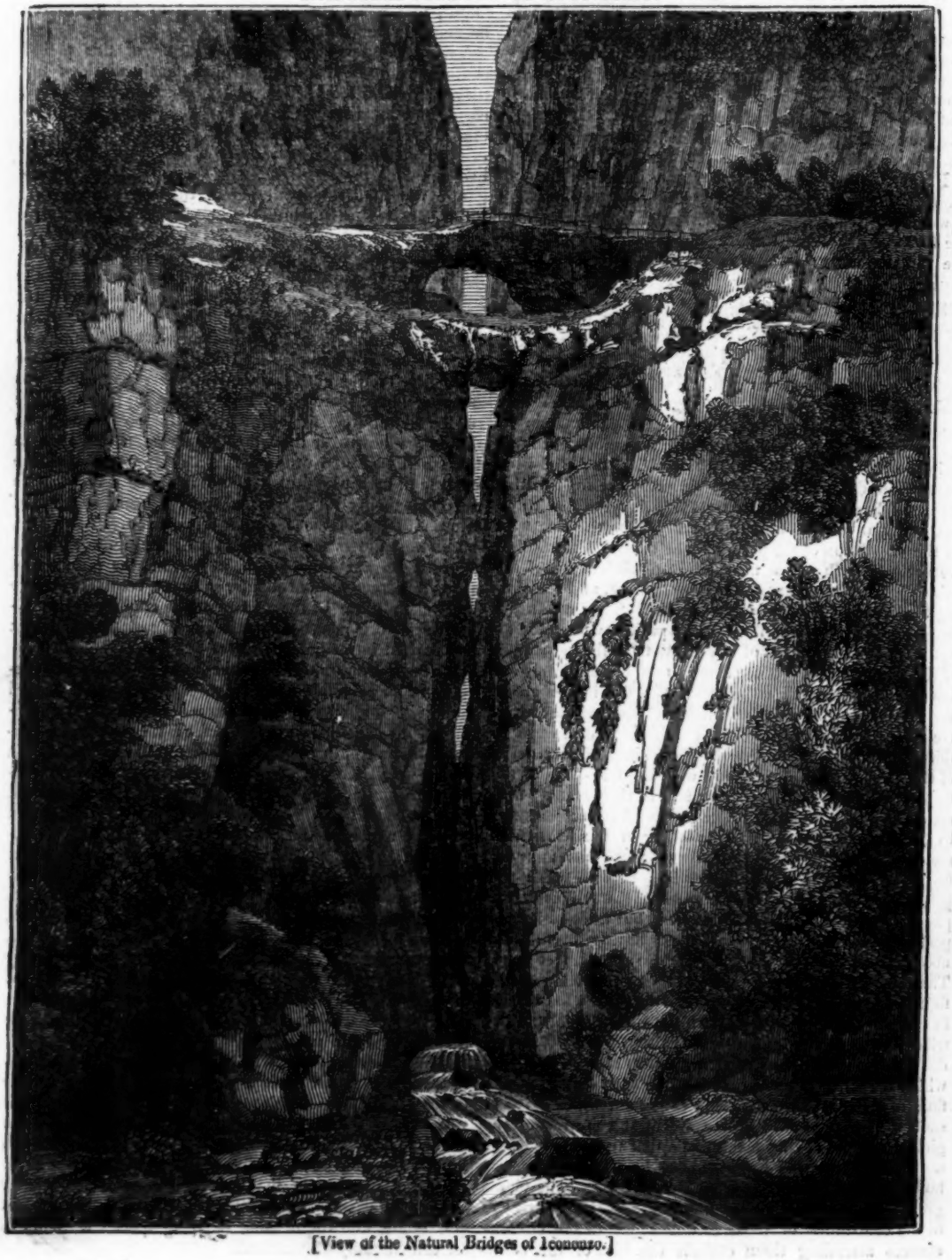
Fourth Period.—From the termination of the deposit of the chalk formation, we discover in the animal and vegetable remains the commencement of resemblances to species which now exist; the proportion gradually increases in the newer strata, until at last the flora of the latest tertiary deposits differs very little in character from that of the present time in the same countries. In the beds immediately above the chalk, ferns and cycadeæ again appear, but in greatly diminished proportions; the coniferæ, but very different from those of the older periods, increase in quantity, mixed with palm-trees and others of the monocotyledonous class of tropical regions, associated with dicotyledonous trees, such as the elm, willow, poplar, chestnut, and sycamore. We again meet with local deposits of decayed, or rather altered, vegetable matter, forming thick beds of a kind of coal, which is used in many countries, as on the banks of the Rhine, for fuel,—something intermediate between coal and peat.

The following table, which is taken from the Prodromus of Brongniart, gives a general view of the character of the vegetation of each period, and a comparison of it with that of the present time, by showing the number of fossil species belonging to the several classes hitherto found in each of the four periods, and, at the same time, the total number of living species of the class, as now known to exist. This last enumeration is merely approximate, and the number of living species we know to be considerably understated.

Names of the Classes.	First Period.	Second Period.	Third Period.	Fourth Period.	Living Species.
1. Agamæ	4	7	3	13	7,000
2. Cellular Cryptogamæ..	0	0	0	2	1,500
3. Vascular Cryptogamæ.	220	8	31	7	1,700
4. Gymnospermous Phanerogamæ	0	5	35	17	150
5. Monocotyledonous Phanerogamæ	16	5	3	25	8,000
6. Dicotyledonous Phanerogamæ	0	0	0	100	32,000
	240	25	72	164	50,350

Thus it appears, that while more than fifty thousand living species of plants have been described, the number of known fossil species did not much exceed five hundred at the time M. Brongniart wrote, viz. in 1828. Several have since been discovered, but the number is still very small; and, without undervaluing what has already been done, we may truly say that the subject is yet in its infancy, not only as regards the mere numerical existence of fossil species, but as to the general laws which future discoveries of new species must unfold to us.

NATURAL BRIDGES OF ICONONZO.



[View of the Natural Bridges of Icononzo.]

In an early Number of the Magazine (No. 13), we gave an account of a remarkable natural bridge in the State of Virginia, North America, and we noticed at the same time the structures of a similar kind in the valley of Icononzo in the Cordilleras. The engraving opposite is a representation of the latter wonderful arches. As we stated before, they were crossed by Humboldt and Bonpland, in September, 1801, on their way from Santa Fé de Bogota to Popayan and Quito; and our engraving is copied from that given by Humboldt in his magnificent volume, entitled "Views of the Cordilleras and Monuments of the Indigenous Nations of America."

The region in which the valley of Icononzo, otherwise called that of Pandi or Mercadillo, is situated, is even in its lowest parts raised to an immense height above the level of the sea. The bottoms of some of its deepest valleys are within a fourth part of the elevation of the Alpine passages of Mount St. Gothard and Mount Cenis. The bridges of Icononzo are placed at a height of about three thousand feet above the ocean. The little mountain torrent, which frets its way in the bottom of the cleft, is called the *Rio de la Summa Paz*, and is at a depth of about three hundred and fifteen feet below the upper bridge. This is formed of an unbroken mass of rock attached to, and making part of the sandstone of which the elevations on both sides are composed. It is forty-seven feet and a half in length; and its breadth is about forty-one feet and a half. The thickness of the mass at the centre is not quite eight feet. The natives have fixed a rudely formed balustrade of canes along its edges, which enables persons passing it to look over without danger.

The other bridge is about twenty yards lower down, and is formed of three large pieces of rock, the central one of which acts as the key of the arch, and supports the other two. This accidental position, as Humboldt remarks, might have suggested to the natives of America an idea of the construction of the arch. "I will not," he continues, "pronounce a decided opinion as to whether these masses of rock have been hurled thither from some distance, or are merely the fragments of an arch which had been broken without being removed from its place, and which was originally of the same kind with the bridge higher up. This last supposition is rendered probable by an accidental collocation of an analogous description presented by the ruins of the Coliseum at Rome, where there are to be seen, in a wall which has half fallen down, several stones arrested in their descent, in consequence of having accidentally formed an arch as they fell." In the middle of this second bridge there is a hole, of about ninety square feet in area, through which you can see the bottom of the abyss below. The torrent seems as if it flowed away into a dusky cavern; and a mournful sound falls on the ear proceeding from an infinite multitude of night birds, that dwell in the dusky cleft, and are to be seen in thousands hovering over the water. It is impossible, however, to catch any of them, and the only mode of obtaining anything like a distinct view of them is by throwing down squibs or torches to produce a momentary light. They were described by the Indians, who call them *cacas*, as being about the size of a hen, and having the eyes of an owl, with crooked beaks. The colour of their plumage is uniform throughout, and of a brownish grey, which makes Humboldt think that they probably belong to the genus *caprimulgus*, of which there are many varieties in this region.

The stream, over which these bridges are suspended, flows from east to west; and the view is taken from the northern part of the valley, from a point where the arches are seen in profile.

ASCENT OF MOUNT ÆTNA.

(*Concluded from No. 93.*)

The sun was now rising, and my attention was directed there. In this I was disappointed; as I have had so many opportunities of seeing the sun rise and set at sea, and I certainly do not hesitate to give the preference to either of these, with regard to the appearance of the *luminary itself*, to the view now presented from the eminence at which I had arrived. But the surrounding country, from the first dawn of twilight to the moment when the sun first appeared, was, I think I may safely say, "beyond conception," to any one who has not been at *this* moment on *this* spot. The moon had passed the full, so that its light was not sufficient to give us a view of the scenery around; besides there always is a dim paleness about reflected light, which glares though at the same time it deceives us. But the instant the sun gave that tinge to the eastern horizon, which I never saw in England, and which is, I believe, peculiar to southern climates, the objects became one by one more distinct.

For several miles down the mountain, not a tree, a shrub, or a herb is anywhere to be seen—nothing but the black cinders. The nearest vegetation is out of the reach of sound, and at such a distance that the eye can perceive no motion; in fact it is one of the few scenes where a panorama might be taken with a striking approach to truth. From such an eminence, as we look down, I do not know whether it is from the rarefaction of the atmosphere, or being so high above that vapour which ever hangs about the lower regions of the earth, or from what other cause, but certainly objects remain distinct at a much greater distance than when on the levels. The effect is that of making the surrounding country appear much nearer than it really is. There is likewise another singularity, no less curious; that is, the stillness and quiet that reign throughout this desert region. We know that even in a perfect calm, on the plains, how the most remote sound is carried along the surface of the earth, to an incredible distance. The slightest murmur of the wind, even in the deserts of Africa, is heard by travellers; and when we cannot distinguish the least motion in the air, we can always discern a confused half-stifled noise. Here, however, though in a breeze so keen that it cut us to the bone, I felt a sort of blank or void in my oral organs, which produced a defective, and rather disagreeable sensation. The wind which blew was conductor of no sound, and from my isolated situation, I was, it seems, almost inaccessible to it. My footsteps I never heard so plainly before, not even in the stillest midnight, although I felt they were not *loud*. Not the least reverberation was distinguishable, and the scene seemed under some spell, in which I could almost have fancied myself included. An enthusiastic Italian, on viewing this glorious landscape at sunrise, exclaimed that the island seemed as if it had been created but last night, and was not yet endowed with the powers of life; and I do not know how to convey any better idea of the view, and the impression made on me, than by quoting his words.

The day was not one of those extremely propitious, but very good; and I should be glad to compound for no worse, were I to go the journey again. Not a single cloud was to be seen; at the same time there was a slight distant haziness in the air, which prevented us seeing Malta. The range of view was, however, prodigious. Being nearly 11,000 feet above the level of the sea, I was not able to find out, without a little search, promontories and mountains which below I had looked up to, and which appeared equally great in their way. Brydone says he is persuaded that Africa is within the range of the visible horizon of Ætna, but in this he must be mistaken. The view from the summit of Ætna is one to arrest the attention of any man, whatever his qualifica-

tions or endowments, with a most riveting interest. The scholar may here see below him the very spots consecrated by the genius of the noblest ancient poets and historians, and scenes which are associated with the dearest of his early recollections. The astronomer will have a new sphere opened to him; for by the great height at which he is arrived he will have left below him those mists and vapours which, nearer the earth, render many thousands of small stars invisible, and others of more difficult vision. The botanist will see a variety of the vegetable tribe, equalled in the same space in no other country. The Lapland productions will be nearest him; while, as his eye moves along, it will insensibly be led to the region, where plants which thrive in the tropics come to perfection, and all this within thirty miles of him. The antiquary may here find ample room for his speculations, for among the numberless calculations as to Ætna, its ruins, the adjacent country, and the antiquity of the volcano itself, none are so satisfactory as not to make us wish for some more authentic conjectures. The minerals which have been extracted from this mountain are numerous; and the museums of Biscari and Givena, in Catania, afford us proof that, on this account alone, a chemist or a naturalist would find an ever-varying source of interest in the examination of the surrounding objects. To the ordinary spectator, the island itself, with the thought of its multitudinous productions, its never-failing fertility, its unrivalled beauty, and the calm serenity which distance throws on the scene, strikes the mind with a sort of awe, that it is, I think, impossible for any man who has been accustomed to think at all not to regard with admiration. Even the dull gaze of rustic ignorance is startled into something more than its wonted sameness. The *coup d'œil* of a spot, permitting the sight of objects which, when below, a man has been accustomed to consider at a wonderful distance, many of them out of sight of one another, and others that he had always looked *up* to; to see these, so far below him that they seem within his grasp, cannot but awaken the attention of the simplest peasant who is moved with any of the springs which animate the rest of the creation.

Having looked on all around and beneath me for some time, I entered the crater. I was certainly surprised at a sight so unlike what I had formed an idea of. It was perfectly walled round by its own ashes in every part except the breach by which I entered. The height of this wall I suppose might be from fifty to seventy feet. The bottom of the crater was a *perfect level*, except being interspersed with about twenty small hillocks, the largest very little higher than a good-sized hay-cock, all of them with proportionate craters, emitting smoke but no fire. The crater, by the imperfect guess which I could make, seemed to be at this time about three miles in circumference, being nearly a perfect circle in form; and I am inclined to think I am not far from the mark in this estimate, as I made the circuit of it at the base, in which my idea of its size was confirmed. With regard to traversing the crater, I am convinced it might have been effected, and also that we might have inspected those minor volcanoes within, but it would have required great care. A single whiff of the nitrous smoke in your face might suffice to lay you senseless: besides the ground underneath, which seemed to be of a sort of coarse sand, was still hot. I never came prepared for such an exploit. To have reached the highest point in the cone, so as to be able to get a peep into the crater, was the boundary of my ambition, and I had timed myself to be back to Riposto by the evening. I was moreover so fatigued by the late efforts I had made, that I felt myself quite unable to make use of what would have been esteemed by many the most fortunate circumstance that could have happened.

The flatness of the bottom of the crater is clear proof, in my opinion, that there exists no vacuum underneath of any consequence. The moment the ebullition occasioned by the elements within ceases, the whole gradually subsides, finds its own level, and consolidates. It is only at the moment of the discharges that there is any depth of hollow below. This is clearly evinced by looking at all the old craters of Ætna (Monte Rossi excepted), where nothing of this sort is discoverable, but a solid mass now occupying nearly to the brim the mouths which only a few years ago vomited, from an immence depth, the most frightful emissions of fire.

I contented myself with taking one or two pieces of the ashes, hot out of one of the hillocks, and proceeded to go round the cone outside. This I found great difficulty in doing, since there was the same sort of hard metallic lava to go over again. Every step I took I had first to make fast a purchase with my hands, thus almost moving upon all fours, so that, to circumscribe the cone, it took a considerable time. We had arrived at the English house, on our way up, at a quarter past four, and though we lost no time in proceeding onwards, did not return to it again until near nine o'clock.

On our return to the English house we made a pretty hearty breakfast. The cold was so great that the wine had become quite thick; and, on entering the stable, the guide found the mules trembling from its effects, notwithstanding they had had plenty to eat during our absence.

THE DEAF TRAVELLER.—No. 4.

Encampments—Intrusions—Travelling Fare—Writing a Journal—Lead Pencils.

Our first day's journey was not performed in company with the caravan, the bulk of which had gone before us to Bakooba, and various other parties were yet to join, that being the place of rendezvous.

We found the yard of the caravansary full of horses, mules, and asses, with their burdens piled up in heaps. These heaps of goods, on this and other occasions, were enclosed within a square formed by a rope, which was fastened to wooden or iron pins driven into the ground. To this rope the cattle were tied, forming a living wall around the packages. There were several such squares; each party of muleteers having their cattle and goods separate. The men generally fix their quarters within the enclosure. This is the form of encampment most commonly used in the yards of caravansaries where there are no covered stables, or where they do not choose to use them; which they seldom do, except in cold weather. When the encampment is not within walls, they prefer to form one great enclosure in a similar manner; yet so that each party, if there be more than one, occupies its own distinct place. The cattle are generally outside, fastened to the rope as before, and the merchandise within; as, indeed, often are the more valuable of the cattle. These are general rules from which there are occasional departures, as danger is or is not apprehended. The goods often, for instance, form part of the exterior line; and while the muleteers commonly like to be *within* the enclosure, travellers often prefer to form their groups *without*, close to the heels of the cattle; generally so composing themselves to rest that their luggage cannot be disturbed without their being roused, or a stir occasioned among the beasts.

Finding the little rooms which the caravansary afforded to be too close and warm for occupation, we, with some others, fixed ourselves and our baggage in the open air, under the shade of a high dead wall, laying out our quilts to recline on, with our baggage under our heads. In Eastern travelling *privacy* is seldom attainable. Even if you get a room, every one feels quite at liberty to come and sit down with you, inquiring into your circumstances and objects, with a freedom which seems impertinent to an European. They also watch

keenly the most minute or indifferent of your operations, and talk freely to one another about them, making a vast number of troublesome inquiries concerning everything they see. To Arabs and Turks, however, the justice is due of saying, that they will generally retire when they see a stranger preparing to eat; and sometimes, perhaps, the traveller will be tempted to eat merely to get rid of them. I do not know whether the Persians, who boast so much of their politeness, have a similar custom: if so, the insatiable curiosity of that people, which in the higher classes it is a point of etiquette to conceal, prevented them from observing it with us; though at times there seemed a show among them of keeping a little in the background on such occasions.

Having no servant, we had no cooking; and except when we came to towns, in whose bazaars ready-dressed meat might be had, we lived mostly on fruits and bread while we travelled with the caravans. Native gentlemen manage these matters more comfortably than those who are not accustomed to their mode of travelling. They have generally a cook and a good supply of cooking utensils with them. And, as in villages, meat is seldom to be had unless a whole sheep be bought, or unless the owner is sure of being able to dispose of all the meat among the travellers before he kills it, they often take with them meat potted in its own fat. A bag of rice, also, is seldom forgotten, as without this grain an Oriental thinks his dinner good for nothing, though with it, lubricated with a little butter, oil, or fat, and garnished with onions, it is, in his view, a feast for a king. Moreover, if the stage be long or tiresome, they will occasionally push on a-head; and, when one comes up with the caravan, they are seen squatting by the wayside smoking their pipes, and sipping the coffee which had been prepared in the interval. They have great facility in getting ready a cup of coffee. Every man carries materials for kindling a fire about him, and the small quantity of fuel necessary to boil the little coffee-pot is easily collected. They let the caravan pass, but soon overtake it; and, on the strength of this occasional refreshment, with smoke and coffee, the two great luxuries of the East, they get on, in excellent condition and spirits, through the most wearisome stages.

When we had dined, and I had purified myself in the stream which flows through Bakooba to the Diulah, I began to write my first entry in the journal which I had made up my mind to keep during the journey, and by which I am now enabled to prepare these papers. I had on former occasions experienced the inconvenience of trusting to memory, or even to rough notes. With this experience, I made it quite imperative on myself, when I left Bagdad, to keep a *full* and regular journal. Possibly I might not have done so, had I been aware of all the difficulty I should find in carrying this determination into effect. I often felt my self-imposed task most grievous when I had to sit down to it in the midst of inquisitive people; often in the open air without shelter from the sun; often when weary, sleepy, faint,—and, at a later period, often when benumbed with cold or blinded with smoke. I can now readily find in my journals the parts I wrote when my eyes were distressed by the glaring sun,—when I could hardly hold the pen from cold,—and when I was drowsy or actually fell asleep over my labour.

When I began to write at Bakooba, my neighbours paid much attention to my operations. On this and a few following days I used a lead-pencil, but soon left it for pen and ink, not only on account of the greater permanence of the writing, but because I was much interrupted and annoyed by the notice the pencil attracted, and the frequent applications made for permission to examine it fully. With the experience of this and former journeys before me, I really do not recollect that any other European article I possessed obtained near so much attention as the black-lead pencil in those parts of Persia and Turkey remote from European intercourse. Its utility was at once perceived; and a thing simply curious, or whose utility was less immediately perceptible to them, was never honoured with such admiring notice. On the present and many other occasions, each man was anxious to know how it was possible to write with solid *ink*, and how the consolidated *ink* got into the *belly* of the wood. Every one was desirous to try the virtues of the wonderful instrument for himself; and, having examined with admiration the characters he had traced, endeavoured by sight, smell, touch, and taste, to find out the qualities of the implement which produced them. The pencil-case also obtained much notice, though the pencil itself was most studied and admired. They were curious, too, to see me writing a character with which they are not acquainted, and in a manner which, as they write from right to left themselves, appeared as writing backward to them. Nor did they omit to inquire *what* was the subject of my writing. The simple truth was told them—that, in my own country, I had friends, who would ask me concerning the things I had seen in my travels; and that I wrote down an account of what I saw that I might be the better able to gratify them. This account of the matter seemed so satisfactory to them that they would sometimes, through my friend, communicate the ages and other particulars concerning the cattle, as information which would be acceptable to the friends in my own country. I know not, however, whether my writing so much may not have helped to procure for us the character of *spies*, which we ultimately obtained. The better-informed Persians have some idea of the use and advantage of keeping a journal, while travelling or residing in a strange country. Mahomed Ali Khan, of Tabreez, told us that he kept a journal while he resided in England, and on his return from thence; and it seems that, when he came back, the prince who had sent him, Abbas Meerza, read the journal with much interest and amusement. The people of our first caravan, however, were not Persians, but Turks, Arabs, Kourds, and Armenians.

CITY OF ROCHESTER.

One of the richest valleys in England is that through which the Medway—the "Medway smooth," as Milton has called it—flows on to the ocean. Here it makes its way through broad meadows clothed with verdure, or waving in the proper season with abundant harvests; while the high grounds that look down upon it in other parts are also planted or otherwise cultivated to the summit. On the south or right bank of this river, in an angle formed by a bend in its course, stands the small, but ancient and not uninteresting city of Rochester. The subjoined engraving presents a view of it as seen from the north-west. Beyond the bridge is perceived the river coming up from the south; till, having passed the bridge, it suddenly changes its direction, and runs for some distance almost due east. The town is thus skirted by the water on the west and north. To the right, beyond the bridge, lies the town of Strood; and farther down the river to the east, the great naval station of Chatham. The three places form almost a continuous line of houses, of fully two miles in length, and are often spoken of collectively as the "Three Towns." They contain together a population of about 30,000, without including the country parts of the several parishes.

Rochester is a place of great antiquity, having been, there is every reason to believe, a British town before the Roman invasion. Its original name seems to have been *Dourbryf*, signifying the swift stream, in allusion to the character of the river on the banks of which it

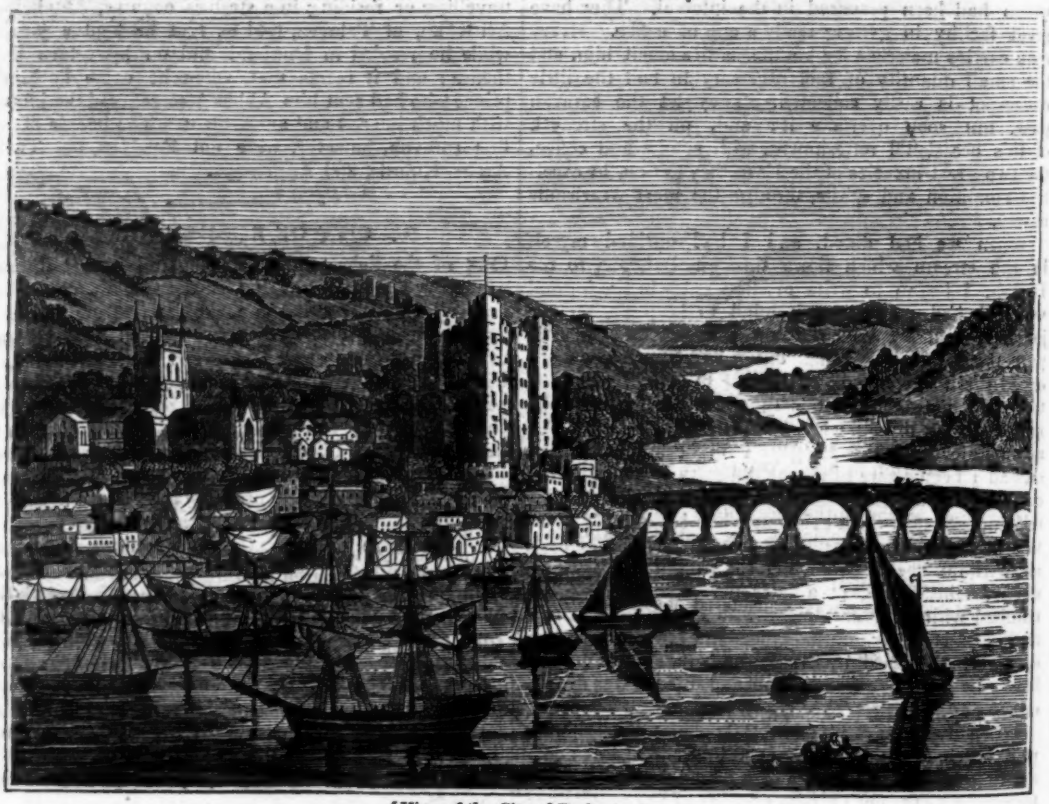
stands. This British designation the Romans, according to their custom, smoothed down into the forms *Durobrovis* and *Durobrovum*, which the Saxons again shortened into *Hroffe*. That, finally, by the addition commonly made in the case of places which had been Roman stations, became *Hroffe-ceastre*, the immediate parent of the modern Rochester. The Saxon *Hroffe*, we may also remark, has been Latinized into *Roffa*, and from this form the Bishop of Rochester takes his common signature, *Roffensis*.

The Roman road from Canterbury to London probably passed through the town of Rochester; and it is supposed that the river was originally crossed here by a ferry, for which a wooden bridge was afterwards substituted. The town appears never to have been very extensive; and is, probably, considerably larger and more populous at present than it was in ancient times. With the parishes of Strood and Frindsbury it contained 12,791 inhabitants by the last census, which was, however, 127 under the number returned in 1821. The population of Rochester Proper is under 10,000.

From ancient documents the city appears to have been walled round, at least so early as the time of Ethelbert I. King of Kent, or about the close of the sixth century. The walls which it then had may have been originally erected by the Romans. Some Roman bricks still are, or were lately to be seen, in the fragments of the old wall that yet remain. As far as the circuit of this ancient circumvallation can be traced, it appears to have formed a parallelogram, the four sides of which nearly fronted the cardinal points. The inclosed space, however, was of very small extent; being only about a quarter of a mile from north to south, and twice that length from east to west. A small tower which occupied the north-east angle of the fortification is still almost entire. It has a winding staircase in the interior. The city gates, of which there were formerly several, have all been long swept away. The last repair which the walls received appears to have been from Henry II., in 1225, on which occasion a fosse or ditch was formed around their base.

Rochester now consists principally of one long street, called High Street, which crosses it from east to west, terminating on the river a little below the present bridge. This bridge is one of the greatest ornaments of the city, and, indeed, is perhaps the finest old bridge in England. It was built in the latter part of the fourteenth century (being completed in 1392), by the famous Sir Robert Knowles, who, in the reign of Edward III., was equally renowned for his military prowess and his piety. It is five hundred and sixty feet in length, and fifteen broad. It has undergone frequent repairs since its first erection, and some of the arches have even been entirely rebuilt. Within these few years a great improvement has been made on it, by throwing the two central arches into one, and thus opening a much wider space for the current of the river and the passage of vessels.

The houses of Rochester are for the most part built with brick, though there still remain several ancient ones of wood. The town has a neat appearance, though in general it has no architectural magnificence to boast of. By far the most conspicuous buildings which it contains are its fine old cathedral, and the ruins of its once strong and commanding castle. We shall give accounts of both in future Numbers. They stand, as they may be seen in the prefixed view, to the south of the High Street, the castle near the river, and the cathedral towards the centre of the city.



[View of the City of Rochester.]

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